

**WHAT IS CLAIMED IS:**

1. An automated microarray printer machine having the capability of automatically transporting a microarray workpiece before and after printing operations by a microarray printer device of said microarray printer machine, said automated microarray printer machine comprising:

- 5           a movable gantry;  
          a support carriage slidably attached to said movable gantry;  
          a movable arm slidably attached to said support carriage; and  
          a placer unit attached to said movable arm for retaining said microarray workpiece.

10           2. The automated microarray printer machine of Claim 1, wherein said microarray workpiece is a microscope slide.

15           3. The automated microarray printer machine of Claim 1, wherein said placer unit has a locking mechanism for coupling said placer unit to said microarray printer device such that said placer unit and said microarray printer move together in the same direction.

20           4. The automated microarray printer machine of Claim 1, wherein said placer unit has a vacuum chuck to retain said microarray workpiece.

25           5. A placer unit for a microarray processing device to transport a workpiece before and after processing operations by said microarray processing device, said processing device slidably attached to a gantry, said processing device having a support carriage and a movable arm, said movable arm slidably attached to said support carriage, said placer unit comprising:

- a main support body slidably attached to said support carriage of said microarray processing device;  
          a latching mechanism to couple said main support body to said movable arm of said processing device; and  
          a vacuum chuck to hold said workpiece.

6. The placer unit of Claim 5, wherein said processing device is a microarray printer device and said processing operations includes printing operations.

35

7. The placer unit of Claim 5, wherein said workpiece is a microscope slide.

8. The placer unit of Claim 5, wherein said latching mechanism includes an actuator pin and a latch.

40

9. The placer unit of Claim 8, wherein said movable arm of the microarray processing device has a latch receptor for receiving said latch of said latching mechanism.

45

10. The placer unit of Claim 8, wherein said actuator pin is driven by a pneumatic actuator.

11. The placer unit of Claim 5, wherein said main support body is slidably attached to said support carriage by at least one linear track and linear bearing.

50

12. The placer unit of Claim 10, wherein said pneumatic actuator is controlled by a computer.

55

13. An automated microarray printer for performing printing operations on a workpiece, said automated microarray printer having a computer to control the transportation of the workpiece before said printing operations, said microarray printer comprising:

an alignment mechanism to align said workpiece;

a platen to perform said printing operations; and

60

a placer unit to transfer said workpiece from the alignment mechanism to the platen, said placer unit having a main support body and a vacuum chuck, said main support body slidably attached to a movable gantry, said vacuum chuck capable of holding a workpiece.

65

14. The microarray printer of Claim 13, wherein said workpiece is a microscope slide.

15. The microarray printer of Claim 13, wherein said printer further comprises a printer device having a support carriage and a movable arm, said movable arm slidably attached to said support carriage, said support carriage slidably attached to said movable gantry.
- 70
16. The microarray printer of Claim 15, wherein said placer unit further comprises a latching mechanism to couple said main support body of the placer unit to said movable arm of the printer device.
- 75
17. The microarray printer of Claim 16, wherein said latching mechanism further includes an actuator pin and a latch.
- 80 18. The microarray printer of Claim 17, wherein said movable arm of said printer device has a latch receptor for receiving said latch of said latching mechanism.
19. A method within a microarray processing machine for transporting a workpiece from an alignment mechanism to a worktable, said method comprising:
- 85       providing a placer unit having a main support body, a latching mechanism and a vacuum chuck, said latching mechanism having an actuator pin and a latch;
- providing a movable gantry above said worktable;
- providing a processing device having a carriage and a movable arm, said carriage slidably attached to said movable gantry, said movable arm having a latch receptor, said movable arm slidably attached to said carriage;
- 90       activating said actuator to engage said latch of the latching mechanism to the latch receptor of said movable arm;
- moving said placer unit above said workpiece;
- activating said vacuum chuck to hold said workpiece on the placer unit; and
- 95       moving said placer unit from said alignment mechanism to the worktable.
20. The method of Claim 19, wherein said workpiece is a microscope slide.

21. The method of Claim 19, wherein said step of moving said placer unit above  
100 said workpiece includes the steps of translating said movable gantry above said  
worktable and positioning said movable gantry above said alignment mechanism.

22. The method of Claim 19, wherein said step of activating said vacuum chuck  
includes opening a valve to expose said vacuum chuck to a vacuum source.

105